

Checking the calibration of the Stec sgd-710c

- 1.0 Install the dedicated pressure regulator to the zero air cylinder and using 1/4" poly-flo tubing attach a 0 to 10 SLPM MFC. Attach the outlet of the MFC to the BALANCE compression fitting on the back of the Stec sgd-710c.
- 2.0 Install a pressure regulator to a component gas substitute, either nitrogen or air. Attach a 0 to 10 SLPM MFC to the pressure regulator using 1/4" poly-flo tubing, and connect the outlet of the MFC to the COMP (component) compression fitting on the back of the Stec sgd-710c.
- 3.0 Adjust the supply voltage to the MFCs to their full scale output range (5V for Sierra Instruments model 840 MFCs) so that they will only act in sensor mode and not in control mode.
- 4.0 Adjust the pressure on the component gas to 18 PSIG. Adjust the pressure on the zero air regulator to 10 PSIG.
- 5.0 Leak check all connections with a soap solution.
- 6.0 Set the selection valve on the Stec sgd-710c to the desired position and allow the flow rate to stabilize for 20 seconds. Record the selection valve position and the flow rates on the two MFCs in a scientific notebook.
- 7.0 Repeat step 6.0 for all selection positions.
- 8.0 Switch the MFCs and repeat steps 3.0 through 7.0.
- 9.0 The flow rates should match the desired Component to Balance ratios. The Stec sgd-710c is an extremely stable device, which has an inherent accuracy greater than the $\pm 1\%$ associated with MFCs under laboratory conditions. If there is a systematic error between the component and balance gas ratios that is not reversed by switching the flowmeters then malfunction of the Stec sgd-710c, probably due to dirt contamination, should be suspected. The Stec sgd-710c should be treated as an out of calibration instrument as directed by YAP-12.3Q.